CHANNEL TO LIBERTY

SALT WATER INTRUSION STUDY

Soil Laboratory Report No. 349

Received
20 Sept. 1950

CHANNEL TO LIBERTY
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1. Eight borings were drilled by the Field Investigation Section and the first samples from these borings were submitted to the District Laboratory on 11 January 1950. Additional samples were submitted at intervals until 17 March 1950.

2. Moisture content, sieve analysis, liquid limit, and bar linear shrinkage tests were performed on all samples; in addition to the above tests, density determinations were made on all undisturbed samples. The liquid limit determinations were made by the simplified method outlined by the Waterways Experiment Station and the P.I. values were interpolated from a linear shrinkage correlation graph. All test results are included on the graphic logs (Plates 1 thru 39).

3. It is the understanding of the District Laboratory that the borings were drilled at the request of W.G. Shockley of the Waterways Experiment Station who was conducting the investigation. The District Laboratory did not receive a plan or program for testing the samples that were submitted, and was later informed that the study was to be abandoned as preventative measures were to be included in the plans to prevent salt water from intruding the channel. Since the borings were drilled and samples submitted to the laboratory it was decided to perform identification tests and to prepare graphic logs of each boring and then discard the samples. This report will furnish soil data if any future work develops in the area in which the borings were drilled. If a layout of the borings is desired, it may be obtained from the Soil Design Section. No use.

Erben W. Schuldt
ERBEN W. SCHULDT
Head, Materials & Testing Section

September 13, 1950

CORPS OF ENGINEERS
District Soils Laboratory
Galveston, Texas

Soil Laboratory Report No. 349
Plate 9

SWDN-C-62

Project Channel to Liberty — LABORATORY LOG — Sheet No. 1 of 4 Sheets

Hole No. 6D - 3 Station Moss Bluff Offset _____ Date _____

Symbol	Depth in Feet	Elev. in Feet	M.C. % Dry Wt.	U.D.W. lbs./Cu. Ft.	L.L.	P.I.	Bar. L.S.	Sieve Analysis Gr.	Sieve Analysis Sa.	Sieve Analysis Fines	Classification	Field Sample No.
	0.0											
			12.0	-	Non-Plastic		0.0	0	1-69 / 70	30	Brown, SILTY SAND, SM, Loose	Jar 1
			15.5	-	22	6	4.0	0	0-55 / 55	45	Tan, SANDY CLAY, CL, Friable	Jar 2
	5.0		17.3	-	Non-Plastic		1.0	0	0-78 / 78	22	Tan, SILTY SAND, SM, Firm	Jar 3
	10.0		-	-	Non-Plastic		0.0	0	10-86 / 96	4	Tan, SAND, SP	Bag 1
				(Bag 1 represents depths 5.4 - 15.2)								
	15.0		16.8	111	Non-Plastic		1.0	0	1-93 / 94	6	Slumped	DB 1
			18.3	108	Non-Plastic		0.0	0	10-87 / 97	3	Tan, SAND, SP, Firm	DB 2
	20.0		16.7	109	Non-Plastic		0.0	0	14-79 / 93	7	Slumped	DB 3

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Galveston, Texas

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Plate 10

SWDN-C-62

Project Channel to Liberty — LABORATORY LOG — Sheet No. 2 of 4 Sheets

Hole No. 6D - 3 Station Moss Bluff Offset _____ Date _____

Symbol	Depth in Feet	Elev. in Feet	M.C. % Dry Wt.	U.D.W. lbs./Cu. Ft.	L.L.	P.I.	Bar. L.S.	Sieve Analysis Gr.	Sieve Analysis Sa.	Sieve Analysis Fines	Classification	Field Sample No.
	20.0											
											Tan, SAND, SP, Firm	DB 3
	25.0		-	-	Non-Plastic		0.0	0	4-84 88	12	Tan, SILTY SAND, SM	Bag 2
				(Bag 2 represents depths 15.2 - 26.7)								
			19.4	108	25	9	5.5	0	7	93	Blue to Light Gray, CLAY, CL, Plastic	DB 4
	30.0		19.8	-	33	17	10.0	0	5	95	Light Gray, CLAY, CL, Plastic	Jar 4
	35.0		17.6	-	36	20	12.0	0	6	94	Tan to Light Gray, CLAY, CL, Plastic	Jar 5
	40.0		27.5	-	74	40	21.0	0	.1	99	Light Gray to Tan, CLAY, CH, Plastic to Stiff	Jar 6

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District Soils Laboratory
Galveston, Texas

Soil Laboratory Report No. 349
Plate 11

SWDN-C-62

LABORATORY LOG

Project Channel to Liberty — Sheet No. 3 of 4 Sheets

Hole No. 6D - 3 — Station Moss Bluff — Offset — Date

Symbol	Depth in Feet	Elev. in Feet	M.C. % Dry Wt.	U.D.W. lbs./Cu. Ft.	L.L.	P.I.	Bar. L.S.	Sieve Analysis Gr.	Sieve Analysis Sa.	Sieve Analysis Fines	Classification	Field Sample No.
	40.0											
	45.0										Light Gray to Tan, CLAY, CH, Plastic to Stiff	Jar 6
	50.0		19.6	107	Non-Plastic		1.0	0	1-77 / 78	22	Tan, SILTY SAND, SM, Firm	DB 5
			18.5	108	Non-Plastic		0.0	0	0-89 / 89	11	Gray, SILTY SAND, SM, Firm, Slumped	DB 6
			35.9	-	Non-Plastic		1.0	0	5-77 / 82	18	Tan, SILTY SAND, SM, Watery	Jar 7
			20.5	107	Non-Plastic		1.0	0	3-77 / 80	20	Gray, SILTY SAND, SM, Firm, Slumped	DB 7
	55.0		19.2	108	Non-Plastic		0.0	0	1-83 / 84	16	Tan, SILTY SAND, SM, Firm, Slumped	DB 8
			20.2	108	Non-Plastic		1.0	0	47	53	Light Gray to Tan, SANDY SILT, ML, Firm,	DB 9
			19.7	109	Non-Plastic		1.0	0	43	57	Slumped	DB 10
	60.0											

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District Soils Laboratory
Galveston, Texas

Soil Laboratory Report No. 349
Plate 12

SWDN-C-62

Project Channel to Liberty — LABORATORY LOG — Sheet No. 4 of 4 Sheets

Hole No. 6D - 3 Station Moss Bluff Offset _____ Date _____

Symbol	Depth in Feet	Elev. in Feet	M.C. % Dry Wt.	U.D.W. lbs./Cu. Ft.	L.L.	P.I.	Bar. L.S.	Sieve Analysis Gr.	Sieve Analysis Sa.	Sieve Analysis Fines	Classification	Field Sample No.
	60.0											
			22.4	105	Non-Plastic		1.0	0	45	55	Gray, SANDY SILT, ML, Firm	DB 11
			18.6	111	Non-Plastic		1.0	0	29-47 76	24	Tan, SILTY SAND, SM, Firm Slumped	DB 12
	65.0		26.2	-	34	20	12.0	1	38	61	Tan, SANDY CLAY, CL, Disturbed	DB 13
			19.8	107	Not Obtainable		3.0	0	41	59	Tan to Gray, SANDY SILT, ML, Firm	DB 14
			18.2	108	Not Obtainable		3.0	0	50-13 63	37	Gray to Tan, SILTY SAND, SM, Firm, Slumped	DB 15
	70.0		16.7	110	Non-Plastic		0.0	0	76-15 91	9	Tan, SAND, SP, Firm, Slumped	DB 16
			21.2	103	45	34	18.5	13	34	53	Tan, SANDY CLAY, CL, Stiff, Marly	DB 17
			18.2	-	49	34	18.5	3-22-12 37	23	40	Tan, SANDY GRAVELLY CLAY, CL Disturbed	DB 18
	75.0		28.8	94	71	38	20.0	0	1	99	Tan, CLAY, CH, Stiff, SL	DB 19
	80.0											

Texas Highway Department
Form 513 6-41-5m

Drilling Report and Log

Date December 5, 1949

County Chambers Project No. 70-375 Report No. 9
Control 508-2- Highway No. 73 Stream Crossing Trinity Channel

Station No. 1200+25 Hole No. 60-5 Location Left / Right / Center --
Ground Elevation -23.96 Ground Water Elevation

Depth Below Ground From	To	FORMATION	Core Sample No.	Length of Core	Probable Specification Classification
0.0	2.0	Gray Silty Sand	1		Denison
2.0	4.0	Tan sandy clay	2		Denison
4.0	6.0	Tan sandy clay	3		Denison
6.0	8.0	Tan Silty Clay	4		Denison
8.0	10.0	Tan clay	5		Denison
10.0	12.0	Tan clay	6		Denison
12.0	14.0	Tan clay (Slightly sandy	7		Denison
		soft sand (No Sample)			
		at 18.0 - 19.0 soft sand		9/136	Penetrometer
		casing to 22'			
		sand to 30.0 clay in bottom of Denison			
		Barrell. Not enough for sample			
		set 9' more casing (31.0')			
31.0	33.0	Tan & gray sandy clay	8		Denison
33.0	35.0	Tan & gray clay (Slightly sandy)	9		Denison
35.0	37.0	Tan & gray clay (Slightly sandy)	10		Denison
37.0	39.0	Tan & Gray Clay	11		Denison
39.0	41.0	Tan & gray clay	12		Denison
41.0	43.0	Tan & gray clay	13		Denison
43.0	45.0	Tan & gray sandy clay	14		Denison
45.0	47.0	Gray clay	15		Denison
47.0	49.0	Gray clay (Slightly sandy)	16		Denison
49.0	51.0	Gray clay (Slightly sandy)	17		Denison
51.0	53.0	Gray clay (Slightly sandy)	18		Denison
53.0	55.0	Gray clay (Slightly sandy)	19		Denison

NOTE: The Probable Specification Classification depends on the type of project. Roadway Specifications classify excavation as Rock, Special or Common. Bridge Specifications classify excavation as Unclassified or as Common and Rock. Indicate above which classification appears to be applicable.

On Bridge Projects indicate material judged to be suitable for foundations, show characteristics, such as hard, firm or soft.

REMARKS:

The above information is based on my personal observations and may or may not represent conditions contiguous to the holes drilled.

Signature R. C. McCullough Jr. Map
Title

S1850-741-5m

Texas Highway Department
Form 513 6-41-5m

Drilling Report and Log

Date December 6, 1949

County Chambers | Project No. 70-375 | Report No. 9
Control 508-2- | Highway No. 73 | Stream Crossing Trinity Channel

Station No. 1200+25 | Hole No. 6D-S | Location Left / Right / Center --
Ground Elevation 13.96 | Ground Water Elevation

Depth Below Ground From	To	FORMATION	Core Sample No.	Length of Core	Probable Specification Classification
56.0	57.0	Gray clay (Slightly sandy)	20		Denison
57.0	59.0	Gray clay (Slightly sandy)	21		Denison
59.0	61.0	Gray clay	22		Denison
		at 61.5 - 62.5 Tan & gray clay		32/335	Penetrometer
61.0	63.0	Tan & gray clay *	23		Denison (Disturbed)
63.0	65.0	Gray clay	24		Denison
65.0	67.0	Gray clay	25		Denison
67.0	69.0	Gray clay	26		Denison
69.0	71.0	Gray clay	27		Denison
71.0	73.0	Gray clay	28		Denison
73.0	75.0	Gray clay	29		Denison
75.0	77.0	Gray clay	30		Denison
		at 77.5 - 78.5 Gray clay		17/375	Penetrometer
77.0	79.0	G ray clay *	31		Denison (Disturbed)

NOTE: The Probable Specification Classification depends on the type of project. Roadway Specifications classify excavation as Rock, Special or Common. Bridge Specifications classify excavation as Unclassified or as Common and Rock. Indicate above which classification appears to be applicable.

On Bridge Projects indicate material judged to be suitable for foundations, show characteristics, such as hard, firm or soft.

REMARKS:

* Sample taken at same depth as Penetration

The above information is based on my personal observations and may or may not represent conditions contiguous to the holes drilled.

Signature R. C. McCullough Jr. Insp.
Title

S1850-741-5m